2

Notepad

8th European Palaeobotany – Palynology Conference 2010

6-10 July 2010
Budapest, Hungary

9:1

James Doyle

Early K Monocots pt shrift

Doyle 1973 Proposed
Liliaceae as a monocot

Gandolfo Nixon & Crepet 2000
tried to update Monocot

Bremer 2000
14 separate lines of morph
base to E. K

J. Syst Evol 48:1-35
Doyle & Endress 2010

Magn. from Apt of Portugal
Lots of like Araceae

Pennsylvanian
early M Permian

Jansen et al 2007
Moore et al 2007
Chloroplast genome tree

Dyer in 1973 claimed
~~Lotus~~ Acanthophyllum
was monocot? Not later in
his paper in Monocots

Goldblatt et al non-monocot forms
- Yes but genus name had been
Described

- Associated gas w Acanthophyllum

Liberdales monotypic gas w Virgin monotine
which is Calycanthaceae

Pinnoxylis plant
unwalled 2 Pskopt.
granules under the lectures

Permi hard tissue regions

Doyle dyed
Pinnoxylis matrix
Ceratophyllum and Chloranthaceae

Liriodendites
like Chemeleksemia.
Chemeleksemia.
Liriodendron

Doyle 2008 seed plant data set

Andolfo et al. unmy in ref.

9: Z Kvaček

Introduced a Permian "angio"
pollen grain
However doubts that it is angiosperm
more than pseudoalete
called gen Rolandonia

His birth
Angiospermae Osmyns
Rudol. Benoist

Pedersen et al. 2000
Nature 11 May 2000
Flower-type identity genes

- Kvaček objected to my term for
penetration of gymnosperm community

9; 3. Kuhlia Pelvo.
2 / post chloroplast plastid gene

4. slowly evolving genes all chloroplasts

mat K - fast.

Pattern of land plant divergence through ages.

Or mat K also

Lycopsida
Monilophyta Gnetales sister to Pinaceae
Angios sister to ~~Pinaceae~~ Pinophyta

Slow genes good identical topology to mat K.

Angios 167 M yrs as n mat K
~~267~~
~~182~~ 187 ~~200~~ mya A. n fast yrs

Western 40 m sp all major lineages evolved.

4: Vx ne Villanova-Amadory et al.
Mesozoic E. Cenozoic
Boundary
Utrillas Fm. U. Albian
Escucha Fm. Lower Albian
(Aptian?)

Lower Jurassic. II-B
& middle ages

9:5 Xin Hang

Send him the angio flower Paper

He is in the cycad from Cordaites

Middle Jurassic
in Xingqiu namber
Calls it angio
- tried impression pushed to the max of misinterpretation

Schmeissneria
Early Jurassic

Use the derivative group Caytophyllales.

Cites Rothwell & Serbet 1994
Angio + Gnetales

Flower considered w/ 2° shoots
Cordaitales

Placenta - ovoid - borne 2° shoot

Carpel = foliage
encloses bud does not
bear the ovule

Xin Hong - The flora & vegetation
by Spring

Discussion

How many species of Cordaphyllum
are there

Cordaites schenkianus 1750 title
it is 45 m. yrs old.
At 100 m yrs. the
species can hardly be related
to the modern genus but
are probably ~~a stem~~ are
stem members.

8th European Palaeobotany - Palynology Conference
6-10 July 2010 - Budapest, Hungary

7/8/2010

8TH EUROPEAN PALAEOBOTANY - PALYNOLOGY CONFERENCE
6-10 JULY 2010 - BUDAPEST, HUNGARY

Symp 23 - 1

1 M. du Zerdan

Asteraceae & Upper K.
Pollen registered in S. America

Angio Symposium.

What are angio apomorphic characters. & Are important are useful are these in recognizing them in the fossil record

Denk et al mol. Barcoding

Oaks.

Subgenus Quercus White oaks
200 sp

" Pasoltchanus

" Red Oaks 200 sp

Myrsine spp. Ilex.
30 sp. in Malesia

Engelhardia Carya
30 sp. Eurasia
Carlia

Myr Cyclobalanopsis
80 sp. E. Asia
European Oaks.

Mentzelia Oaks of Asia
in Russia
- Come up with same
scheme as molecular work
type and refs.

Protobalanus group early offshoot
of White oak group

Quercus Lobatae an Ilex Oak

23-4. Burkard x m.
Asmosjeton in Eagle

Rosaceae in Pinnedeal
Ranunculaceae relatively common

Carex
Halorrhagis
Rosaceae
Apiaceae
Betulaceae
Juglans
Lythrum

23:5

Pollen in Palaeozoa show wide variation in size from just > 10 µm to 25-30 µm.

34:1 Else Marie

Documents early diversity in Hauterivian
v Dite d'Torres Vedras.
Torres Vedras in Portugal

Lower Aptian. 125.

50 species of Angio-

Flowers bi & unisexual.
Unicarpellate
& multicarpellate

Unicolpate & inaperturate
Mostly anatropous
Mostly epitectal

Syplandraceae
Archipsrum like

Hedyosmum w/ H. sellingianum type
pollen
Ulocarium
w/ Trichomosulcate

Nymphaeales
w/ a germination cap &
operculum
& lateral Valvate gap
Nymphaeites marsi

Cupressales ?
vesicular tetrads

Monocots
Monosulcate
Monocolpate

Other monocots
Multimonocolpates

Vida Viride flora
also Palmaecolpites
w/ loose reticulum

Endosts also but rare at
Forest Veder

Pinus: Pinuptil
& Strobus

Buxaceapollenites

Fries, Grapel Pedersen Both
" "

Early Kangis wetland over
dessert water bodies

Phytoplankton decreases much
earlier than ecological disturbance

B4: Adam Halamski

Late K of Central Europe

Upper Campanian

B34: Barbara Mohr

Crete Fm.
Late aptian of Brazil
possibly earliest Albian

30 taxa of angiosperms

Angio rare but diverse
Look like herbs from swamps.

Some perfect
Mostly entire mar
gin.

Ven- pinnate trichobotrys
two main adaptations.

Cuata Fm.
Monocots
Arecipites
Striatopollis
Fibrillate leaf.
Chloranthaceae
Asters serrate

Eumorphidy
n Lauales

Mohr & Bachmann 2003
Calycanthaceae Asimpia
pinnate lobed

Box of Magnitudes

Mohr & Bernardes-de-Oliveira 2004
Endress 1994

Queiroziod Mohr + Ryan 2004
↳ called it a monocot bud

pres. Saxifragaceae

Araceae

Monocot remains w/ small flowers

Pandanales Brown et al
byfl 100% m.yr.

Trimeniaceae

Ranunculaceae
Proteaceae

Hydatellaceae ? Archaefructus placed
together in her phylum

34:8 Tschan Extended diagnosis of
Cedrelum

Paul Strother

The embryophytes did not inherit a Canalized version of meiosis

Strother et al 1996

Landmark paper on origin of land plants

Successive meiosis Evol of laminated

Ufo Ordo

Semultaneous meiosis

Tetrahedral tetrad not united Caradocian

Palmelloid

the antithetic origin of the plant sporophyte

Roots origin of the sporophyte

Endodermis of sporangiophores

Dyad pores from regular sheath

Sterilization of some of the sporogenous cells to supply a nutritive tissue

Zonocolpate sporoderm

Spore characters indicate early hygrophyte origin

Tetrahedral form not the
origin of the land plants

Adult vs
vegetative propha
sporogenic develo
Endogenic develop

30; 3

Hornworts w/ a symporoid body

Renzaglia et al.
argue that Hornworts basal-

J. Doyle Hornworts sister of vascular plants
thus features of hornworts might
be shared w/ that node

30:4.

Byn Late Ord

Permanent tetrads + Dyn

Late Ord

Separating Tetrads + Dyn

Tetrads not united
Hardly

Lower Devonian megafossils

05:5

Dombeyopsis crata Hs
= Craigia bronii
~~not~~ H/ Fruits & Leaves together
I

Use the word
Genus species Complex
to refer to multinamed
~~taxa~~

30: 6 Jennifer Morris

CO_2 in Soil carbonate nodules

CO_2 in air — 6 ‰ rel. to atm CO_2

CO_2 in Nodules -26

CO_2 in Nodules - 18.8

Price & Sellwood 1994

Martin Gibling

Nelson

. / meandering system in Cambrian is a tidal Creek

Mudrock Content in E Dev.

Paleosols few channels

Lacustrine SOP.

V. dermani many

Calcrete nodules Rarely Present in E or O

Big jump in Late Ld
Cores + MTs Dev mid
for Ludl on -

Braya Mts.

Ludlow Lochaten beds

Told & Kent 1991 Sedimentology

Cambrian Shelf sandstone
Alderney SS. of Channel Is
Braid Belt
Shelf Braided
no sig. channels
in Cambr Mts.
Virtually no mud.

Royal Crypt. in E of Channel

West 2005 Sedimentology
No mud in sandier coal

Gravels only were coming out
of the upland systems
No lots plants to produce
sands & clays

Story of Delta not
Shell beds in tsun mags

By boundary
shell sands but also
now mud stones

Modern Flood Plain sediments - Lhadrosaur
w meandering
M

Emscher - Battery point

Braided fluvial but
unlike E an alluvial
Now is Channel-Braided
& Root system
Some Charcoal
Plant fragments common

Lunetown:
Braided
Limited lat. accrete
Coleroles

Coalsheds Purple & C. Den
Big scale meandering
system
Common ~~Brook~~ Plant roots
Low
Coarse Spray and
Mud assemblage

Tal & Rinkevich 2007

Mud prevents bleaching

20 years in lab & field.

Fluvial evolution model WJ

Anastomosing river first appear in Pennsylvanian possibly as a result of microbial regulation

Mentor to him Esperito Santo in Brazil 1.5 hr.

30'.

A Berry · New Views on oldest Forests

Pseudosporhnis
How were branches attached

19 Cm trunks
Latest middle Dev

Pseudosporhnis hunter up to
6 m long
Stein et al. in Nature 2007

— Mid Eifelian

All of these plants are still
there

Archaeop
Forests as early as Givetian
w Small Archaeopteridaleans &
Large Pseudosporhnales

Ex Czech

25: 1

In Czech late Penn.

On local ~~and~~ very upmost regolith is a patchy mosaic consisting of virtually monospecific stands

On reg scale Flood plain reg. heterogeneous at landscape scale

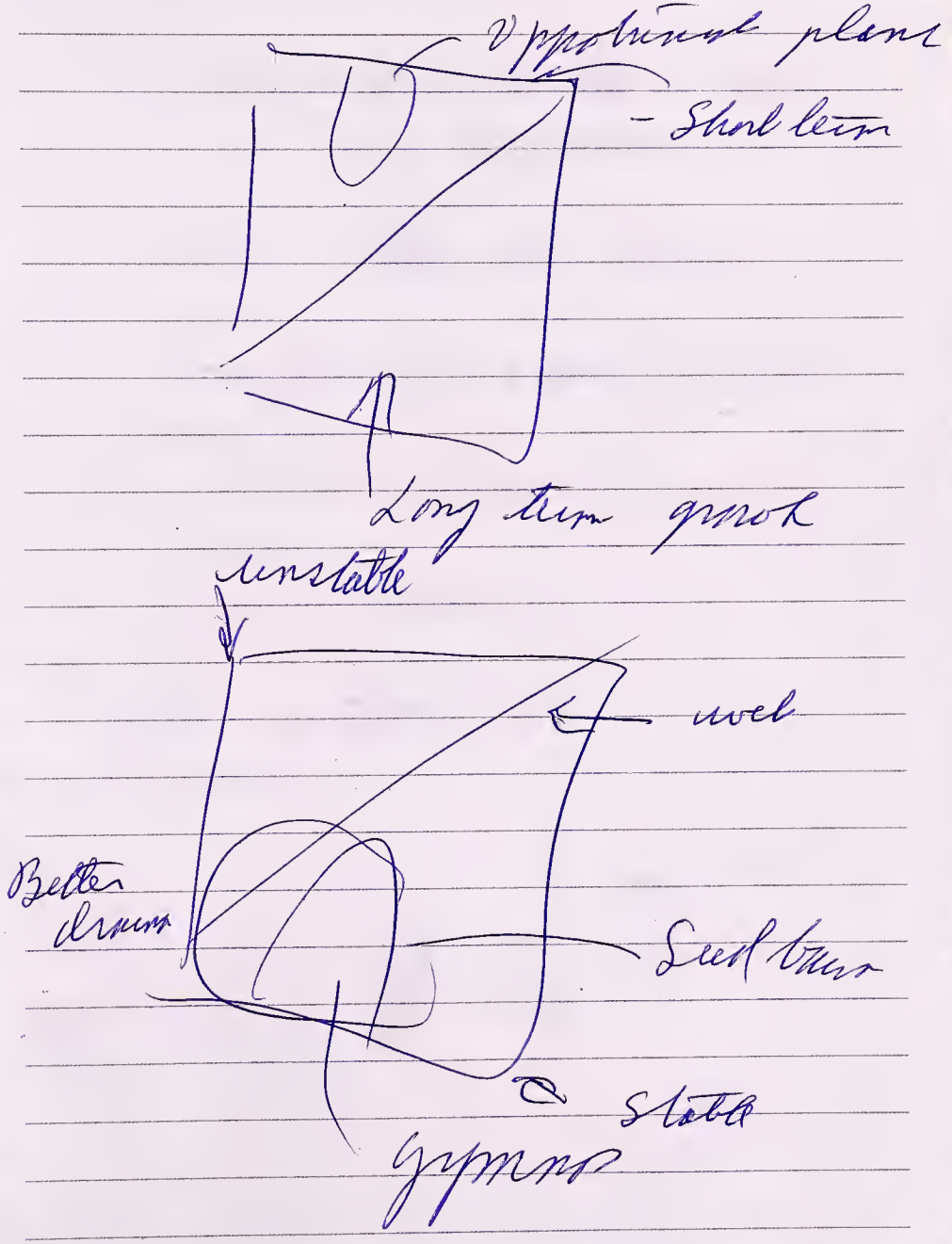
~~ND~~ NMDS

~~NMDS~~ Multivariate analysis. Kruskal analysis indicates association of plants in discrete ?

ent.

Stony habitat predominantly among most plant clades

Tree ferns taller


Opportunist plant
- Short term
Long term growth
unstable
well
Better
drain
Seed bank
stable
Gypsum

Buried channel assemblages
monospecific

Flood plain channels

Abandoned meander channels
- Sphenopsids

Trees

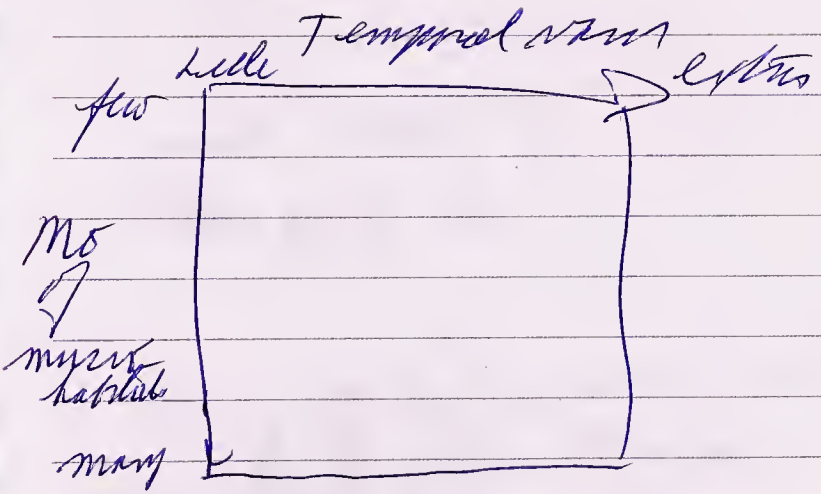
Medullosan ~~trees~~
seed

Flood plain
Low canopy of tree ferns
w understory of sphenopsids

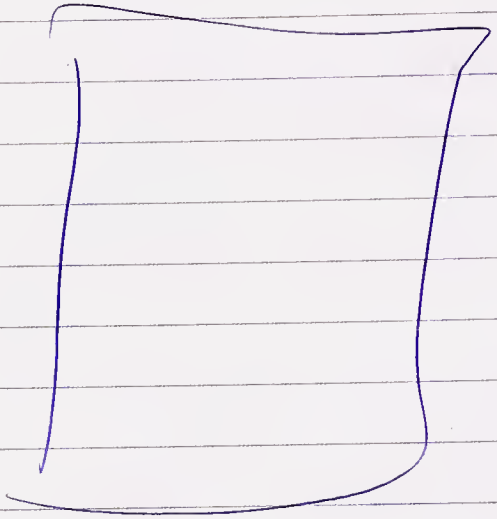
- Mires - Peat
- Tree ferns

Swamps Lycopsids Cla

Pickett & White 1985
Patch dynamic Concept



Gymnosperm assemb.
- Raised & stable
channel margins
Little dist.



Pondering
Communities
Spore producers
widely fast
growing

Arrested stands
low lying Sphagnum

Clades arranged along ecol.
gradients controlled by
drainage & stability of
substrate

Dest. mesh community
and habitats

Extended Correspondence analysis

Cluster analysis

Jones et al Kleiton phyllites
from Spain
IJS 170 (8)
1075
1085.

Jos. Boyer send the
Germinated
Mms

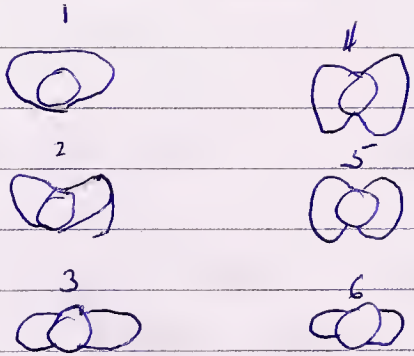
8th European Palaeobotany - Palynology Conference
6-10 July 2010 - Budapest, Hungary

On Cathaya
Poster by
Jimenez Moreno et al.

Abundant in Tertiary Europe

6 different morphs of
Cathaya used by Sivak (1976)
for Cathaya

Cathaya ~~sp.~~ morrisiae + Cort



Sivak (1976)

I relate Sheds in spores
Disaccites
long differs from
~~Also~~ Lin Tetraedris

Manchester &

Mc Issac

Is the Azolla specimen
Disaccites ??

Compared to Fredericia collenulata

Differs in its alternate
rather than opposite
Branching pattern

Seed cones

Dilatocladus are attached mostly by stalks

Fochenia allervata

D. planophyllus (China U-Mid) small upright shoots Cones dorsal ventr

D. heerensis - different in other fossil species

Cretaceous Dilatocladus all in Canada and East Asia

Rare in polar temperate maps Cup U. Mesozoic

stronglly found
in Melosegura swamps

Dilepidinus last in late
Paleocene
- due to Eocene maximum

Symp 8
Law

Chamaecyparis from Eocene of
Axel Heiberg

Alternate branches
but opposite scale

Fossil mammal date on
Axel Heiberg site
45 m a.

I like these like my stuff

Citrus & Isolated Populations of
Metaregmia differ from those
of the Type Population

Axel Heiberg populations

of Metasequoia is similar
in having dimorphic
(rather than unimorphic) stomates
~~on the~~ ~~of this~~ isolated Populus

Fossil ones from Axel Heiberg
some of them are deciduous
unlike living population
n = 3,200
Deciduous 22%
Deciduous 32%
Not clear 46%

Eske Koch. 1963
noted deciduous arrangement
from Greenland

Also from Alberta
Stanley, Basinski
& Falder, 2000

Chamaecyparis meriae
by Bassinger

this one. It seems is the
oldest occurrence of the genus

Saturday, July 10, 2010

India collision w/ Eurasia starts
~ 50-48 ma.

Yin 2009 nice drift reconstruction of India colleu

Molnar & Chamberlain 2008
Tibetan & Intenn Times

Spicer et al 2003
4600 m Namdon flora
by 14.5 ma.
(Present elevation)

3125 Mohai Poppa.
Anomozamites &
Pterophyllum

Scoresby Sound Flora
Also known as N

Triassic - Jurassic

Systematics of megafloral
Late p.
Pott & McElwain (2009)

Later Papers on Anomozamites & Pterophyllum
In Pott et al 2007a, b
Pott & McLoughlin (2009)
On

Harris (1932a, b, 1969); Watson &
Sencoda (1992), Boyd (2009)
Van Konijnenburg-v an Cittert et al
Pott & McLoughlin Paper very simple.

8TH EUROPEAN PALAEOBOTANY - PALYNOLOGY CONFERENCE
6-10 JULY 2010 - BUDAPEST, HUNGARY

Send Poppa the Huntrop
Symposium manual

Lutz Kunzmann

Arctophyta &

Crete Fl. m. Hot Temperate
semi-arid
Late Aptian

Nervolenia dubia
3 lobed leaf
alt opposite, dentate

Ceania heterophylla

Bordered pits in one row

But no perforation plates
-
similar to Ephedroids

[Send Krentzman ch

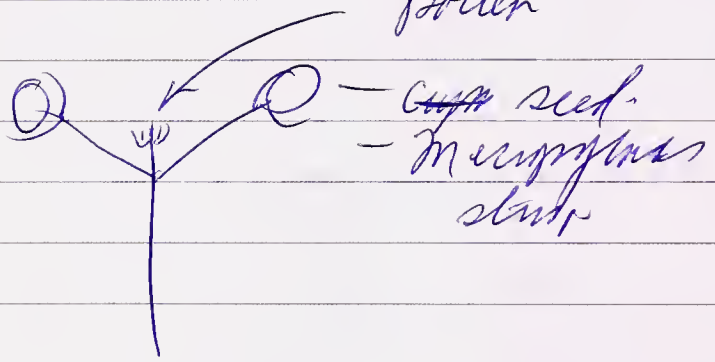
8TH EUROPEAN PALAEOBOTANY - PALYNOLOGY CONFERENCE
6-10 JULY 2010 - BUDAPEST, HUNGARY

Angio flower paper]

New Taxon

Creeping axis

Cones w 2 pairs of bracts
Decussate cup that
encloses a large ~~cup~~
seed.
Epidermal cells



Bracteal pairs in whorls w
1 mm becoming 2 rows
at end of branch but
no evidence of a perianth yet

Mohr, Bardara.

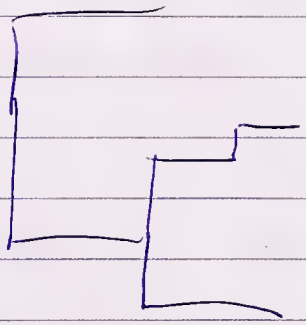
Mes Gnetophytes from Gondwana realm

Rydin et al.
Gnetophytes from China

Kunzmann et al 2009

Ceratia

Real Ephedra pruns



Send Barbara Mohr the any pictures

8TH EUROPEAN PALAEOBOTANY - PALYNOLOGY CONFERENCE
6-10 JULY 2010 - BUDAPEST, HUNGARY

Hebwoldschird plant

Rybin et al 2008

'Aurriculaephyllum"

Another looking like Dicroidium

"Pinnopsis"

Spetoid pits on tracheids.

Chalazoxylon seed coats on Hebwoldschia

Parallel veined leaves but looks like Gnetum ~~flow~~ enfrascens.

No vessels.

Rydin et al.

See Rydin papers

Ephedra archaeorhytidosperma

Ephedra effeminica has occasionally
bisexual male cones
not functional to produce
a pollination drop
as the only sp. of Ephedra
that is insect pollinated

Puzzled by lack of some characteristic
autapomorphies of this here can taxa
in the stem groups

Chlamys is the

Final Paper Thomas Stuckey

- Closest conifer is Cupressaceae (s.s.)

Cephalotaxus has transitional male cones

to

Pseudotaxus

w/ no subtending bract

Toreya

- Flowers in Gnetum represent Compound Cones

the budding characters support the match w/ (at least) extant

7/11/2010

Vesborta mire

Brackish water throughout in the Pannonian lake

Standing Sequoia + Taxodium tubercles

Fruits + seeds principal remains

Swamp vegetation + surrounding flood plains

Trunks Taxodium germanicum Glyptostrobi

8th European Palaeobotany - Palynology Conference
6-10 July 2010 - Budapest, Hungary

8th European Palaeobotany - Palynology Conference
6-10 July 2010 - Budapest, Hungary

8th European Palaeobotany - Palynology Conference
6-10 July 2010 - Budapest, Hungary

8th European Palaeobotany - Palynology Conference
6-10 July 2010 - Budapest, Hungary

Arroyo shows a gradual
from the ones shown in
slide + fuses to
2 duraglutes.

Repeated alternation units
w/ thin silt to sand
beds terminate w/
arroyo intercalated w
clays. &
→ Distal base w little
to no sorting & fine
if any clasts

half of the data in Lady A
angst fossils.

Two study done
me reading the pubs
keeping interval and
providing a valued role.

Anyone from graduate to
the back room -

H showed research provided
info on possible loc. of
"Fish Hill about D.C.
Canal"
→ Found amps damaged
by mm transport but
the ones not fine a
many are so fragile

Paradigm

Flora has not stood very far

Constant

There is a

relationship between the fossil

plants and the sediment.

Not only real factors but also

the adopted ones can be

pulled from the pond with

anyone in their hands

there are associated

not random, alternately

2 p. minimum of the

desired term,

= If I reject the real content

of anyone is the more work

17:40-1800 Room 1

17-17:20 Rm 2

3:2

16-16:20 Z talks in Chapel

8:5